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EXAMINER

KYLE, MICHAEL J

ART UNIT

PAPER NUMBER

3676

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Please find below and/or attached an Office communication concerning this application or proceeding.

SW

Office Action Summary

Application No.

10/006,597

Applicant(s)

HILGERT, CHRISTOPH

Examiner

Michael J Kyle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on the amendment filed on June 19, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17, 18 and 20-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29 is/are allowed.
- 6) ☒ Claim(s) 17, 18, 20-28 and 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17, 20, 28, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (U.S. Patent No. 5,582,415) in view of Jacobs (U.S. Patent No. 4,140,323) and Ueta (U.S. Patent No. 5,230,521). Yoshida et al discloses a flat gasket comprising at least one metal sheet (45) which is provided with a coating of an elastomer film (30) at least on sides facing outward in at least one sealing area and which has an edge area formed by the outer contour adjacent to at least one peripheral self contained cavity (shown in figure 17, area under bead 16). Yoshida et al further discloses the cavity to be enclosed by at least one bead (16) of the metal sheet (45) and a second metal sheet (44) bridging the bead. However, Yoshida et al does not disclose a cavity being completely filled with a hydraulic medium. The examiner considers the two metal sheets (44, 45) to be permanently jointed together because the stopper (46) appears to hold the two metal sheets together. However, to more clearly show two metal sheets permanently jointed together, the examiner relies on the teachings of Ueta.
3. Jacobs teaches a gasket having a cavity (34) that is completely filled with a hydraulic medium (36) in order to prevent the embossment (around cavity 34) from flattening out and losing much of its intended sealing capacity. Therefore, it would have been obvious to one of

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ordinary skill in the art at the time the invention was made to modify Yoshida et al as taught by Jacobs in order to prevent the bead from flattening out and losing sealing capacity.

4. Ueta shows a metallic gasket with a cavity enclosed by at least one bead (3) of a first metal sheet (1-1) with a second metal sheet (1-2) bridging the bead. Ueta teaches the two metal sheets (1-1, 1-2) to be permanently jointed together at joint locations (8) to prevent local increases in pressure that are caused by stoppers, which helps maintain the roundness in bores (column 1, lines 48-61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Yoshida et al as taught by Ueta by replacing the stoppers of Yoshida et al with the joints of Ueta to prevent local increases in pressure and in turn, better maintain the roundness of the bore.

5. With respect to claim 20, Yoshida et al discloses that the metal sheet (45) and the second metal sheet (44) are joined in a fluid tight manner (column 5, lines 6-10). Yoshida et al states that coating layer (31), between the metal sheets, "can prevent coolant and hot combustion gas from leaking" (column 5, lines 9-10). The examiner considers this to be fluid tight.

6. With respect to claim 28, Yoshida et al, as modified by Jacobs, discloses a cavity filled with a substance that is liquid at least under operating conditions. The examiner asserts that any substance in the cavity will become a liquid under operating conditions that create a temperature above the substance's melting point. The examiner justifies this statement by the fact "operating conditions" are not specifically defined in the specification of the present application.

7. With respect to claims 30-32, Yoshida et al discloses the cavity to be filled with a polymer material that is plastically or elastically deformable and that the polymer material is silicone. Yoshida et al also discloses at least two flat gaskets (figure 17).

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8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Udagawa et al (U.S. Patent No. 5,054,795) in view of Yoshida et al and Jacobs. Udagawa et al discloses a metal sheet (33) with an edge area (34) formed by a cylinder bore, the edge area adjacent to at least one self contained cavity (37), wherein the cavity is formed by the metal sheet (33) being flanged back onto, and joined to itself in the edge area. The examiner considers the flanged portion (35) to be joined to the metal sheet (33) because it is in contact with the metal sheet. Udagawa et al does not disclose the metal sheet to be provided with an elastomer film on the sides facing outward from the cavity, or for the cavity to be completely filled with a hydraulic medium.

9. Yoshida et al teaches a metal sheet (45) with a cavity formed therein (16), the cavity provided with an elastomer film (30, 31) on the sides facing outward from the cavity so as make the sides facing outward from the cavity heat resistant and wear resistant (column 5, lines 8-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Udagawa et al as taught by Yoshida et al in order provide a heat and wear resistant surface.

10. Jacobs teaches a gasket having a cavity (34) that is completely filled with a hydraulic medium (36) in order to prevent the embossment (around cavity 34) from flattening out and losing much of its intended sealing capacity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cavity of Udagawa et al et al by completely filling it with a hydraulic medium as taught by Jacobs in order to prevent the bead from flattening out and losing sealing capacity by improving the resiliency of the cavity so that when a load it is removed the cavity will be more easily returned to it original shape.

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11. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al in view of Jacobs and Ueta as applied to claim 17 above, and further in view of Maeda et al (U.S. Patent no. 6,145,847). Neither Yoshida et al, Jacobs, nor Ueta disclose the second metal sheet to have a second bead in the area of the first bead of the first metal sheet, the second bead having a different design from that of the first bead, or the second bead having a profile with a smaller cross section than the first bead.

12. Maeda et al teaches a second metal sheet (2) to have a second bead (5') in the area of the first bead (5), the second bead having a different design from that of the first bead, or the second bead having a profile with a smaller cross section than the first bead (figure 6) in order to enhance sealing performance on the side of the cylinder head in a controlled manner. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the second metal sheet of Yoshida et al, as taught by Maeda et al, in order to enhance sealing performance on the other side of the gasket in a controlled manner.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al in view of Jacobs and Ueta as applied to claim 17 above, and further in view of Pearlstein (U.S. Patent No. 4,428,593). Neither Yoshida et al, Jacobs, nor Ueta disclose the second metal sheet to have second bead in mirror image to the bead of the first metal sheet.

14. Pearlstein teaches a gasket with a second sheet having a second bead in mirror image to the bead of the first sheet, in order to enhance sealing performance on both sides of the gasket. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yoshida et al, Jacobs, and Ueta as taught by Pearlstein in order to enhance sealing performance on both sides of the gasket.

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15. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al in view of Jacobs and Ueta as applied to claim 19 above, and further in view of Hiramatsu et al (U.S. Patent No. 6,135,459). Neither Yoshida et al, Jacobs, nor Ueta discloses a third metal sheet arranged between a first metal sheet and the second metal sheet, the third metal sheet included in a connection between the first and second metal sheets, the metal sheet and the second metal sheet defining a first portion of the cavity, the third metal sheet and the second metal sheet defining a second portion of the cavity or the cavities on both sides of the third metal sheet to be in hydraulic communication with one another. Yoshida et al, Jacobs, and Ueta also do not disclose the third metal sheet to have a third bead having a differently shaped profile, or that the first, second, or third beads are subdivided into at least two partial beads.

16. Hiramatsu et al teaches a third metal sheet (4) arranged between a first metal sheet (2) and the second metal sheet (3), the third metal sheet included in a connection between the first and second metal sheets, the metal sheet and the second metal sheet defining a first portion of the cavity (portion above third sheet 4, and below bead 2), the third metal sheet and the second metal sheet defining a second portion of the cavity (portion below third sheet 4 and above bead 3, in figure 2) and the cavities on both sides of the third metal sheet to be in hydraulic communication with one another in order to restrict the total compression of the beads. The examiner notes that when the beads are filled with a hydraulic medium as taught by Jacobs, that a force acting on the first portion of the cavity will be transferred through the hydraulic medium through the third metal sheet and to the hydraulic medium of the second portion of the cavity. The examiner considers this to put the first and second portions into communication. Hiramatsu et al also teaches the third metal sheet to have a third bead having a differently shaped profile and that the

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first (6) and second (7) beads are subdivided into at least two partial beads (figure 2) in order to further enhance sealing performance. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yoshida et al, Jacobs, and Ueta as taught by Hiramatsu et al in order to restrict the total compression of the beads and to enhance sealing performance.

Allowable Subject Matter

17. Claim 29 is allowed.

Response to Arguments

18. With respect to claims 17-20, 28, and 30-32, the applicant argues that Maeda et al teaches away from completely filling an annular bead portion with a resin layer. Examiner notes that claim 18 has been re-written in independent form and claim 19 has been cancelled. Claims 17, 20, 28, and 30-32 are currently rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (U.S. Patent No. 5,582,415) in view of Jacobs (U.S. Patent No. 4,140,323) and Ueta (U.S. Patent No. 5,230,521). The examiner asserts that Jacobs does teach completely filling a bead portion with a hydraulic medium. The Maeda et al reference was not used in the rejection of the claims listed above. Furthermore, in the claims that were rejected further in view of Maeda et al, only the shape of the bead portion of Maeda et al were being considered as a teaching, as Jacobs clearly teaches completely filling a bead portion with a hydraulic medium. The examiner further notes that Ueta is now cited as a teaching reference to show two metal sheets permanently joined together.

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19. Applicant's arguments with respect to claim 18 have been considered but are moot in view of the new ground(s) of rejection. Claim 18 is now rejected under 35 U.S.C. 103(a) as being unpatentable over Udagawa et al (U.S. Patent No. 5,054,795) in view of Yoshida et al and Jacobs.

20. With respect to claims 25-27, the applicant argues that none of the references used in the rejection of these claims teaches a first and second portion of cavity, separated by a third metal sheet, in hydraulic communication with one another. The examiner notes that when the beads are filled with a hydraulic medium as taught by Jacobs, that a force acting on the first portion of the cavity will be transferred through the hydraulic medium through the third metal sheet and to the hydraulic medium of the second portion of the cavity. The examiner considers this to put the first and second portions into communication.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to gaskets flanged onto themselves or having a third metal sheet: Udagawa et al (U.S. Patent No. 5,205,569), Udagawa et al (U.S. Patent No. 5,240,262), Kubouchi et al, Ushio et al, and Ishida et al.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Kyle whose telephone number is 703-305-3614. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

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23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703-308-3179. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

24. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2168.

mk



Anthony Knight
Supervisory Patent Examiner
Technology center 3600